0200/04.02

Threaded inserts for plastics

AMTEC®

Precision threaded inserts and installation equipment
for plastics for after-moulding applications

BÖLLHOFF

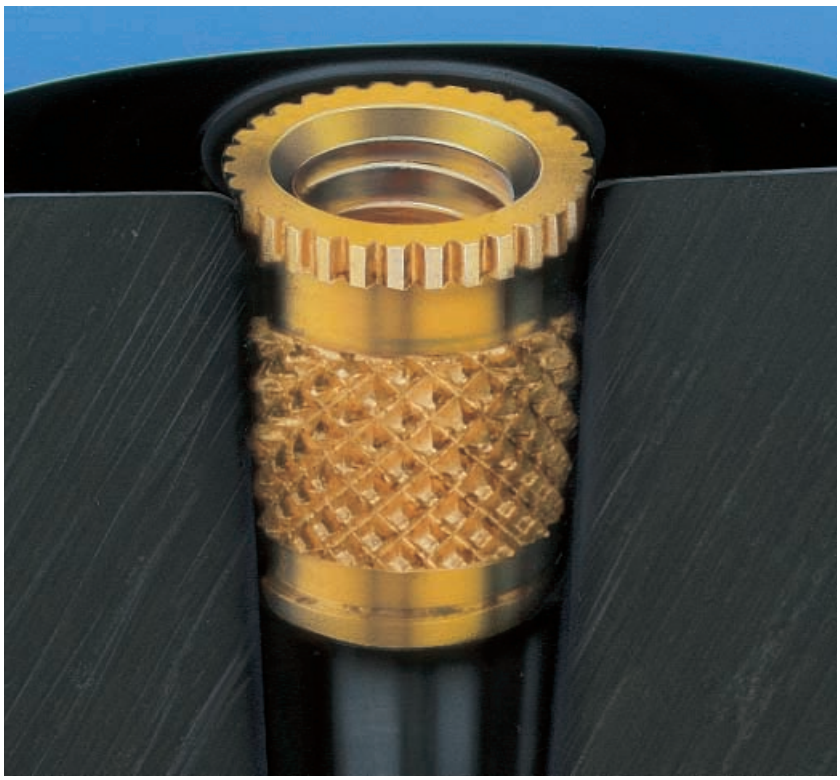
Our quality and environmental management system is excellent!
DIN EN ISO 9001:2000
14001 and ISO/TS
16949:2002

AMTEC® heavy-duty threaded inserts for plastics

Advantages of our threaded inserts:

Our threaded inserts are designed for after-moulding insertion,
thereby dispensing with inlaying and injection moulding around threaded inserts;
this means:

- shorter injection cycles and an automatic injection moulding process with no inlaying of metal components
- no danger of injection mould damage by the metal parts moving during moulding
- no tension cracks owing to difficult control of shrinkage around the metal part
- advantages versus self-tapping screws, since the joint can be separated as often as required without thread damage
- safe, tension-free anchorage with high pull-out and torque values
- reduction in manufacturing costs of the plastic components and increased quality of your products
- plastic in plastic threaded inserts made of special plastic no longer need to be separated for recycling



Our product range includes:

- **Precision threaded inserts** for heat and ultrasonic insertion, expansion anchoring and self-tapping insertion for moulded components in thermosets, thermoplastic or reactive resin materials (including filled or foamed materials).
- **Installation tools and machines**
  We offer you the most efficient installation method via the KVT system (see page 31).
  - Manual installation tools
  - Semi-automatic installation tools
  - Automatic machines: ranging from multiple insertion for large production runs to freely programmable CNC-controlled installation machines for frequently changing components
- **Fastening components for direct screw-fitting of plastic parts with appropriate tools**
- **Customised development:** we develop and manufacture “tailor made” threaded inserts and installation devices for your specific requirements

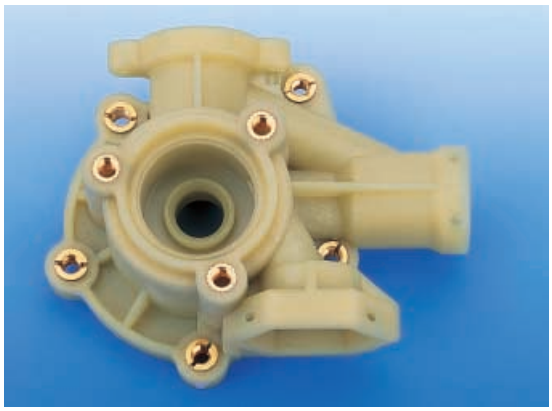
*Examples of applications of **AMTEC**® threaded inserts*

This selection of plastic components shows a small section of the wide range of possible applications for our threaded inserts in different plastics, in which optimum benefit is obtained from all the advantages for economical and reliable construction.

What is the solution for your specific tasks?
Our technical advice service is available at all times without any commitment on your part for expert consultation and installation demonstrations.

Our own development and manufacturing departments offer product solutions tailored to specific applications.

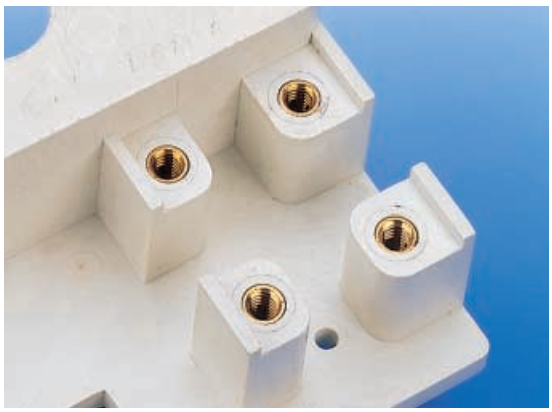
Mobile telephone case
SONICSERT® M1.6



Pump housing
HITSERT®**2** M5 and
SPREDSERT® with
retaining flange M6

Furniture handle
HITSERT®**2** M4

Walking aid
HITSERT®**2** M8



Electronic switch box
EXPANSIONSERT 1
M4

Pump housing
HITSERT®**2** bolts M6
and compression limiters

Advisory Service for **AMTEC®** *threaded inserts* (for direct contacts, see back cover)

Customer data

Date of inquiry: _____

Company: _____ Address: _____

_____

Tel.: _____ Fax: _____ E-Mail: _____

Contact person (name and responsabilities): _____

_____

Applicable department: _____

Customer's authorisation guidelines: _____

Requested date for visit from technical marketing manager: _____

Application

Technical description (function, dimensions, tolerances, etc.)

Can Böllhoff – be supplied with a sample (according to application)? ☐ yes ☐ no

– be supplied with a drawing (of the application)? ☐ yes ☐ no

Manufacturing and tooling principle: _____

Enclosures: _____

Commercial information

New application: ☐ yes ☐ no

Annual requirement: _____

Qty supplied: _____

Duration of application: _____

Start of volume production (date): _____

Prototypes required: ☐ yes ☐ no

if yes, date and quantity: _____

Initial sample required: ☐ yes ☐ no

if yes, date and quantity: _____

Preliminary series required: ☐ yes ☐ no

if yes, date and quantity: _____

Current solution (to this or a similar application):

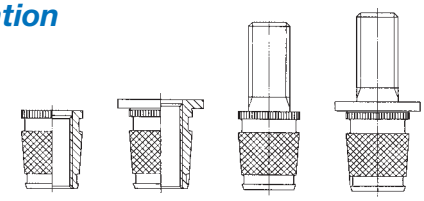
Technical problem areas:

AMTEC® *at a glance*

Qualifications Performance targets	**HITSERT® 2**	**HITSERT® 3**	**SONICSERT®**	**SONICSERT® SCREWLOCK®**	**QUICKSERT®** self-tapping	**QUICKSERT®** type 1230 expansion	**EXPANSION-SERT 1**	**EXPANSION-SERT 2**	**SPREDSERT®** type 1/type 2
Suitability for different parent materials									
– Thermoplastics	very good	very good	very good	very good	good	good	satisfactory	in exceptional cases	type 1 good
– Thermosets	unsuitable	limited	unsuitable	unsuitable	very good	good	good	unsuitable	type 2 good
– Foam	unsuitable	no	unsuitable	unsuitable	satisfactory	limited	not quite so good	good	not quite so good
– Elastomers	unsuitable	no	unsuitable	unsuitable	satisfactory	no	unsuitable	good	not quite so good
Minimum equipment required for installation (machine technology)	thermal instal-lation mach. (min. qty. by soldering gun)	„Soldering gun“ screwdriver toggle press	ultrasonic welding machine	ultrasonic welding machine	manual fitting tool screwdriver	spindle lifting toll (possible press)	manual fitting mandrel	manual fitting mandrel	manual fitting mandrel
Recommended wall thickness (comparison index between types: 1 = small, 4 = large)	1	1	2	2	3	4	4	4	3
Preparation of component	blind or through hole	blind or through hole	blind or through hole	blind or through hole	blind or through hole	blind or through hole	blind hole	blind hole	blind or through hole
Influence of tolerance fluctuations in the drill hole. Catalogue recommendations 0.1 mm>S>0.3 mm	strong	strong	strong	strong	weak	strong	very strong	weak	very strong
Interference fit values in thermoplastics	100 %	100 % for heat insertion and screwing, 70 % for pressing	80 %	80 %	120 %	100 %	60 %	–	50 %
Ability to be bolted from both sides	yes		yes	yes	yes		no	no	yes
Special requirements:									
– Density	with O-ring (performed)		with O-ring (conceivable)		no		no	no	no
– Threaded bolt	yes		possible with major expenditure		no		no	no	no
– Through hole	yes		conceiv. (expend.)	conceiv. (expend.)	no		no	no	no
Miscellaneous	by taper (8*) – self-centring – low tension	variable seal insert introduction				also suitable for light alloys	simple installation		favourable price
In this catalogue on page	**8 – 9**	**10**	**12 – 13**	**14**	**16 – 17**	**24**	**18 – 19**	**20**	**21 – 22**

*Range overview for **AMTEC**® threaded inserts*

Thermal installation

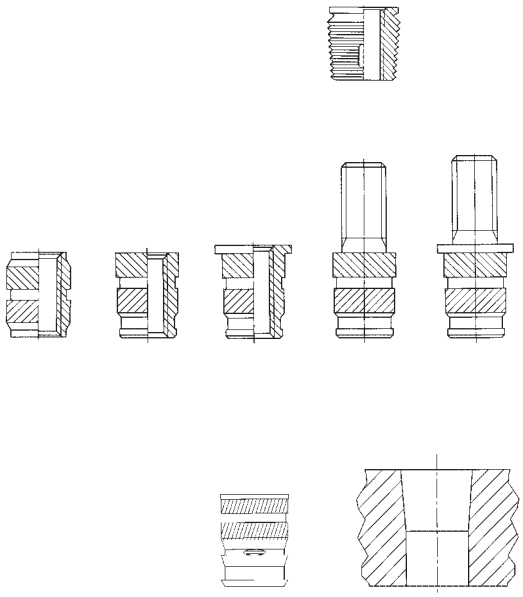


HITSERT® 2
Tapered threaded insert for all thermoplasts.
Particularly suitable for thermal conduction installation.
Rational installation by single-spindle, multiple spindle or automatic machines.
Brass M2 – M8 *
Page 8 – 9

Thermal installation, tapping and cold insertion

HITSERT® 3 universal use
Tapered threaded insert for thermoplastics.
Particularly suitable for
■ thermal installation ■ tapping ■ cold insertion
Rational installation by single-spindle, multiple spindle or automatic machines.
Brass M3 – M8 *
Page 10

Ultrasonic installation

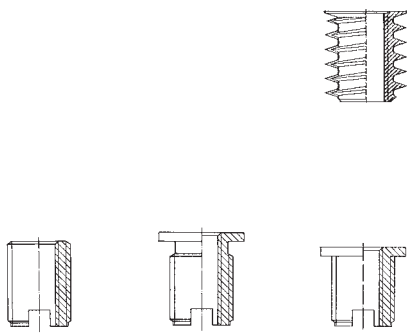


Plastic in plastic type 163
Tapered plastic threaded insert for thermoplasts.
Plastic component and plastic in plastic insert can be recycled together. Elaborate separation of the threaded insert from the component is no longer required. The innovative solution for metal-free components (e.g. in the X-ray field). Use in thermosets such as glass fibre reinforced plastics, SMC, etc. (polymer meshing) on request.
Plastic M3 – M8 *
Page 11

SONICSERT®
Threaded insert for all thermoplasts.
Particularly suitable for ultrasonic installation.
The ability to be fed from both sides is particularly suited to full automatic installation.
Brass M1,2 – M8 *
Page 12 – 13

SONICSERT® SCREWLOCK®
The SONICSERT® SCREWLOCK® is a threaded insert with integrated screw gripping for subsequent thermal and ultrasonic installation in thermoplastics. The SONICSERT® SCREWLOCK® was designed specifically for applications in which vibrations occur or defined release torques are still required after multiple screwing.
Brass M2,5 – M6 *
Page 14

Self-tapping installation

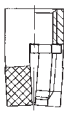


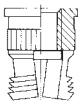
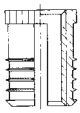
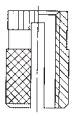
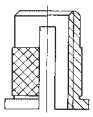
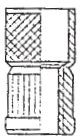
Plastic in plastic type 173
Plastic threaded insert for components in hard foam, thermoplasts PE, PP and wood materials. In an appropriate application, the plastic component and plastic in plastic insert can be recycled together. The innovative solution for metal-free components (e.g. X-ray field).
Plastic M3 – M10 *
Page 15

QUICKSERT®
Self-tapping threaded insert for brittle and ductile plastics, e.g. unsaturated polyester resins (SMC, injection moulding of glass fibre reinforced plastic), polyethane and glass fibre reinforced thermoplasts. Heavy duty, universally usable, optimum installation properties.
Steel/brass M4 – M10 *
Page 16 – 17

Range overview for AMTEC® threaded inserts

Expansion anchoring



EXPANSIONSERT 1
Threaded insert for all plastics and their composite materials.
Brass M2,5 – M8 * Page 18 – 19

EXPANSIONSERT 2
Threaded insert for reactive resin, PUR, integral hard foam, elastomers and also wood composite materials.
Brass M2,5 – M8 * Page 20

SPREDSERT® 1
Threaded insert for all thermoplasts and their composite materials. Additional vibration-proof locking screw.
Brass M2 – M8 * Page 21

SPREDSERT® 2
Threaded insert for all thermosets. Additional vibration-proof locking screw.
Brass M3 – M6 * Page 22

SPREDSERT® with retaining flange
Threaded insert for through holes in all plastics with high pull-out values.
Brass M3 – M6 * Page 23

QUICKSERT® type 1230
Threaded insert for chipping-free installation in smooth location holes. Creates a stable thread in light alloy thermoplastic **and** thermoset materials.
Steel/brass M3 – M8 * Page 24

Installation tools and machines

for all our threaded inserts
our KVT system offers you the most efficient installation method for your batch size. Manual installation tools, semi-automatic installation tools, automatic machines: ranging from multiple insertion for large production runs to freely programmable CNC-controlled installation machines for frequently changing components.
Page 27 – 31

Extended range for direct screw-fitting for plastics with tools

Page 32 – 33

* Other dimensions and materials on request.

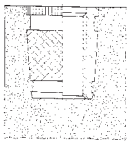
HITSERT®2

Advantages

- ideal for thermoplastic components
- specifically designed for thermal installation
- distortion-proof and low-stress anchorage
- high pull-out values
- economical installation by single-spindle, multiple spindle or automatic machines with preheating devices

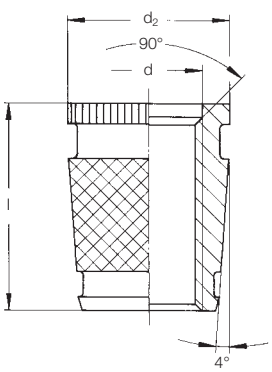
Material: Cu Zn 38 Pb 2

Principle

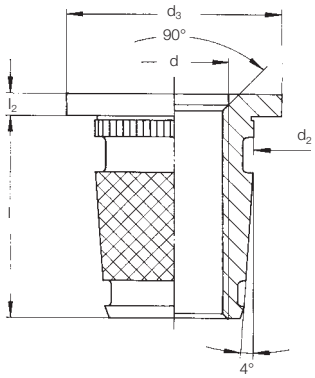


The **HITSERT®2** threaded insert is heated to the melt temperature of the plastic. The surrounding material is briefly plasticised by thermal conduction on insertion and flows into the undercut of the threaded insert. A low-stress interference fit results on cooling.

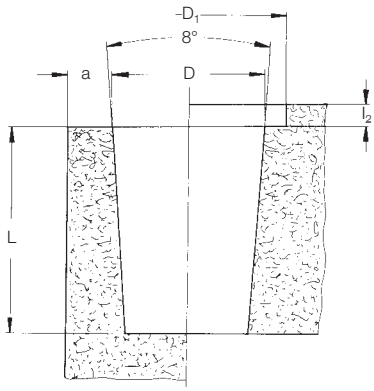
Type 0932



Type 0931②



Location hole①



For installation tools and machines, please refer to pages 27–31

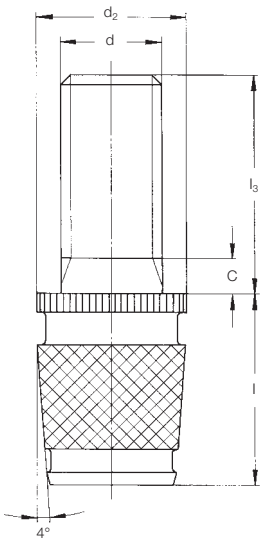
d	Type 0932 Product code	Type 0931② Product code	l	l_2	d_2	d_3	D $^{+0,1}$	D_1	$L_{min.}$	$a_{min.}$
M 2	0932 102 0005	0931 102 0056	5,0	0,6	4,1	5,0	3,8	5,2	6,0	1,5
M 2,5	0932 125 0005	0931 125 0056	5,0	0,6	4,1	6,0	3,8	6,2	6,0	1,5
M 3	0932 103 0005	–	5,0	–	4,7	–	4,4	6,2	6,0	1,8
M 3	0932 103 0055	0931 103 0061	5,5	0,6	4,7	6,0	4,4	6,2	6,5	1,8
M 3,5	0932 135 0006	0931 135 0068	6,0	0,8	5,5	7,0	5,2	7,2	7,0	1,8
M 4	0932 104 0006	–	6,0	–	5,9	–	5,8	8,2	7,0	2,0
M 4	0932 104 0075	0931 104 0083	7,5	0,8	5,9	8,0	5,8	8,2	8,5	2,0
M 5	0932 105 0007	–	7,0	–	7,0	–	6,9	8,7	8,0	2,0
M 5	0932 105 0009	0931 105 0010	9,0	1,0	7,0	8,5	6,9	8,7	10,0	2,5
M 6	0932 106 0009	–	9,0	–	8,6	–	8,5	10,2	10,0	2,5
M 6	0932 106 0010	0931 106 0011	10,0	1,0	8,6	10,0	8,5	10,2	11,0	2,5
M 8	0932 108 0012	0931 108 0013	12,0	1,0	11,1	12,0	10,9	12,2	13,0	3,0

Metric ISO threads to DIN 13-6H.

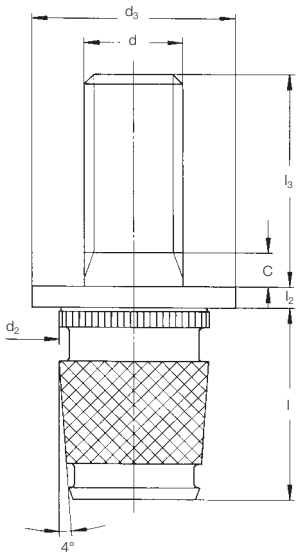
① Guide values: dependent on component material. Alter after insertion tests, if necessary.
② The flange offers a wide support area, thereby reducing surface pressure. These components are not in stock. Minimum quantity on request.

Other sizes, specials and materials on request.

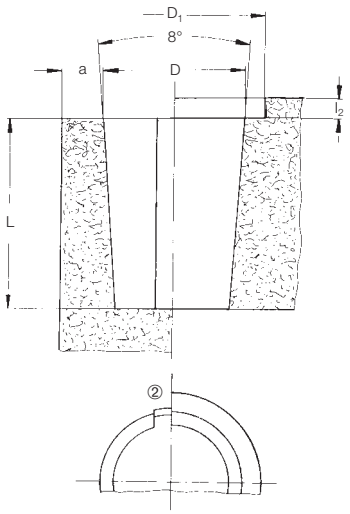
Type 0940



Type 0941④



Location hole①



For installation tools and machines, please refer to pages 27–31

d	Type 0940 ③ Product code	Type 0941③ Product code	l	l_3	l_2	d_2	d_3	$D^{+0,1}$	D_1	$L_{min.}$	$a_{min.}$
M 2,5	0940 125 0005	0941 125 0005	5,0	5,0	0,6	4,1	6,0	3,8	6,2	6,0	1,5
	0940 125 0010	0941 125 0010	5,0	10,0	0,6	4,1	6,0	3,8	6,2	6,0	1,5
M 3	0940 103 0005	0941 103 0005	5,5	5,0	0,6	4,7	6,0	4,4	6,2	6,5	1,8
	0940 103 0010	0941 103 0010	5,5	10,0	0,6	4,7	6,0	4,4	6,2	6,5	1,8
	0940 103 0015	0941 103 0015	5,5	15,0	0,6	4,7	6,0	4,4	6,2	6,5	1,8
M 3,5	0940 135 0005	0941 135 0005	6,0	5,0	0,8	5,5	7,0	5,2	7,2	7,0	1,8
	0940 135 0010	0941 135 0010	6,0	10,0	0,8	5,5	7,0	5,2	7,2	7,0	1,8
	0940 135 0015	0941 135 0015	6,0	15,0	0,8	5,5	7,0	5,2	7,2	7,0	1,8
M 4	0940 104 0005	0941 104 0005	7,5	5,0	0,8	5,9	8,0	5,8	8,2	8,5	2,0
	0940 104 0010	0941 104 0010	7,5	10,0	0,8	5,9	8,0	5,8	8,2	8,5	2,0
	0940 104 0015	0941 104 0015	7,5	15,0	0,8	5,9	8,0	5,8	8,2	8,5	2,0
M 5	0940 105 0010	0941 105 0010	9,0	10,0	1,0	7,0	8,5	6,9	8,7	10,0	2,0
	0940 105 0015	0941 105 0015	9,0	15,0	1,0	7,0	8,5	6,9	8,7	10,0	2,0
	0940 105 0025	0941 105 0025	9,0	25,0	1,0	7,0	8,5	6,9	8,7	10,0	2,0
M 6	0940 106 0010	0941 106 0010	10,0	10,0	1,0	8,6	10,0	8,5	10,2	11,0	2,5
	0940 106 0015	0941 106 0015	10,0	15,0	1,0	8,6	10,0	8,5	10,2	11,0	2,5
	0940 106 0025	0941 106 0025	10,0	25,0	1,0	8,6	10,0	8,5	10,2	11,0	2,5

Metric ISO threads to DIN 13-6g.

① Guide values: dependent on component material. Alter after insertion tests, if necessary.
② For blind holes, we recommend core pins with ventilation features. Further details on request.
③ These components are not in stock. Minimum quantity on request.
④ The flange offers a wide support area, thereby reducing surface pressure.

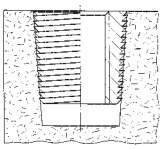
Other lengths, sizes, specials and materials on request.

HITSERT® 3

Advantages

- tried and trusted 8° taper angle
- self-centring
- wide contact area before insertion
- flexible installation by thermal insertion, self tapping or cold insertion
- short insertion times
- milled external contour (low tolerances)
- sealing inserts available

Principle

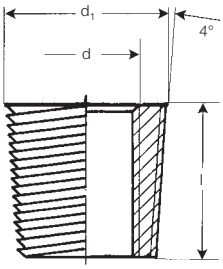


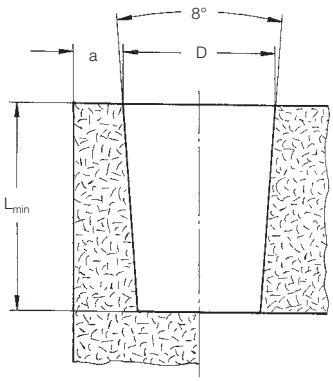
The **HITSERT® 3** is a tapered universal insert for thermoplastics (thermal installation, self tapping and cold insertion).

Owing to its patented external contour (characterised by a fine, self-tapping thread with an asymmetrical side profile) the **HITSERT® 3** provides a threaded insert that enables the user to employ for the first time the complete range of tried and trusted insertion methods.

Our application technology assists you in finding the optimum manufacturing method for your specific application (expenditure in terms of installation, tightening values, etc. You establish the priorities).

Type 0935





Thread size	Product code	$d_1^{\pm}$	l	$D^{+0,1*}$ (mm)	$L_{min.}$	$a_{min.}$
•M 2	0935 1020 004	4,1	4	3,8	5,0	1,5
•M 2,5	0935 1250 004	4,1	4	3,8	5,0	1,5
M 3	0935 1030 005	4,7	5	4,4	6,0	1,8
M 4	0935 1040 075	6,1	7,5	5,8	8,5	2,0
M 5	0935 1050 009	7,3	9	6,9	10,0	2,0
M 6	0935 1060 010	8,9	10	8,5	11,0	2,5
•M 8	0935 1080 012	11,3	12	10,9	13,0	3,0

•Threaded inserts with flanges and specials on request.
*Guide values: dependent on component material. Alter after insertion tests, if necessary.

German and international patents applied for and granted.

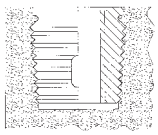
Plastic in plastic type 163

This plastic threaded insert, of high density special plastic, mounts a high strength thread in the component. Component and insert no longer have to be laboriously separated for re-use, making recycling easier.

The imminent “legislation on the avoidance, reduction and utilisation of wastes of used electric and electronic equipment” will come into force in the near future as the **Electronic Scrap Regulations.**

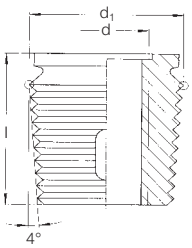
Prepare for it now! Our plastic threaded inserts will make your plastic components completely recyclable.

Principle

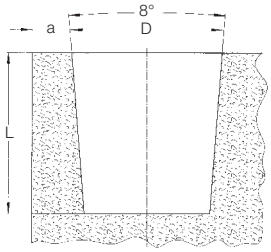


The threaded insert is bonded into the component after it has been removed from the mould. The tapered shape of the insert and the matching location hole ensure that the insert is seated centrally. The insert, of a blended special plastic, forms a homogenous joint with the component when bonded in.

Type 163



Location hole①



Advantages

- Stress-free insertion, especially suitable for stress crack-susceptible materials
- High thread strength
- High pull-out strength
- Short insertion times (approx. 0.3 sec.)
- Very little noise generated during installation
- Leak-tight joint between insert and component
- No corrosion
- Weight saving
- Cost saving
- Anchoring even in non-thermoplastic materials e.g. glass fibre reinforced plastics, SMC, etc. (polymer meshing)

Material code — Colour code

Product code 1634 304 0009

Material: 1: PA GF (blend) 2: PC GF 4: PP GF 5: PS ductile

Colouring: 3 (standard): black
Other colours for appropriate batch sizes on request.

Strength values:

For installation tools and machines, please refer to pages 27–31

d	Product code	Insert material	d_1	l	$D^{+0,1}$	$L_{min.}$	$a_{min.}$
M 3	1634 303 0075	PP GF	5,8	7,5	5,8	8,5	2,3
	1632 303 0075	PC GF	5,8	7,5	5,8	8,5	2,3
	1631 303 0075	PA GF (blend)	5,8	7,5	5,8	8,5	2,3
M 4	1634 304 0009	PP GF	7,0	9,0	6,9	10,0	2,5
	1632 304 0009	PC GF	7,0	9,0	6,9	10,0	2,5
	1631 304 0009	PA GF (blend)	7,0	9,0	6,9	10,0	2,5
M 5	1634 305 0010	PP GF	8,6	10,0	8,5	11,0	2,8
	1632 305 0010	PC GF	8,6	10,0	8,5	11,0	2,8
	1631 305 0010	PA GF (blend)	8,6	10,0	8,5	11,0	2,8
M 6	1634 306 0012	PP GF	10,9	12,0	10,9	13,0	3,0
	1632 306 0012	PC GF	10,9	12,0	10,9	13,0	3,0
	1631 306 0012	PA GF (blend)	10,9	12,0	10,9	13,0	3,0
	1635 306 0012	PS ductile	10,9	12,0	10,9	13,0	3,0
M 8	1634 308 0015	PP GF	13,9	15,0	13,8	16,0	4,0
	1632 308 0015	PC GF	13,9	15,0	13,8	16,0	4,0
	1631 308 0015	PA GF (blend)	13,9	15,0	13,8	16,0	4,0

① Guide values: dependent on component material. Alter after insertion tests, if necessary.
Permissible tightening torques depend on the insert material and tightening method.

Minimum quantity on request.
International patents applied for and granted.

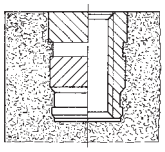
SONICSERT®

Advantages

- suitable for thermoplastic components
- specifically designed for ultrasonic installation
- distortion-proof and low-stress anchorage
- high pull-out values
- type 0730 can be fed from both sides. Advantages for automatic feed, since no directional orientation required.

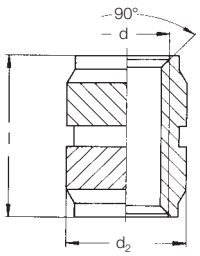
Material: Cu Zn 38 Pb 2

Principle

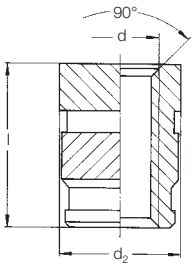


The **SONICSERT®** threaded insert is installed using commercially available ultrasonic vibration devices. The surrounding material in the welding area is plasticised by the ultrasound vibrations and flows into the undercuts of the threaded insert. A low-stress interference fit results on cooling.

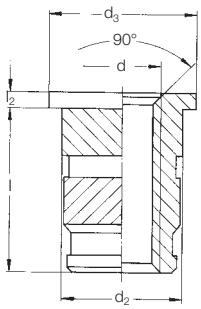
Type 0730



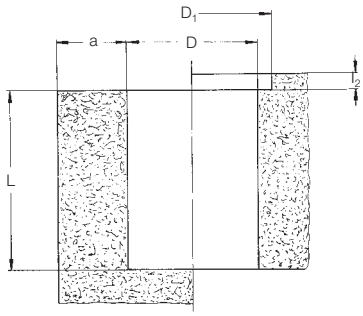
Type 0733



Type 0734②



Location hole①



For installation tools and machines, please refer to pages 27–31

d	Type 0730 Product code	Type 0733 Product code	Type 0734② Product code	l	l_2	d_2	d_3	$D^{+0,1}$	D_1	$L_{min.}$	$a_{min.}$
M 1,2	–	–	0734 112 0290	2,9	0,4	2,0	2,6	1,6	2,8	3,3	0,65
M 1,4	0730 114 0002	–	–	2,0	–	2,2	–	1,9	–	2,5	0,7
M 1,4	–	–	0734 114 0310	3,1	0,4	2,2	2,8	1,8	3	3,5	0,7
M 1,6	0730 116 0250	–	–	2,5	–	3,0	–	2,6	–	3,0	0,8
M 1,6	–	–	0734 116 0330	3,3	0,4	2,5	2,9	2,1	3,1	3,7	0,8
M 2	0730 102 0004	0733 102 0004	0734 102 0046	4,0	0,6	3,6	5,0	3,2	5,2	4,5	2,0
M 2,5	0730 125 0058	0733 125 0058	0734 125 0064	5,8	0,6	4,6	6,0	4,0	6,2	6,5	2,3
M 3	0730 103 0058	0733 103 0058	0734 103 0064	5,8	0,6	4,6	6,0	4,0	6,2	6,5	2,3
M 3,5	0730 135 0072	0733 135 0072	0734 135 0008	7,2	0,8	5,4	7,0	4,8	7,2	8,0	2,5
M 4	–	0733 104 0072	–	7,2	–	6,3	–	5,6	8,2	8,0	2,5
M 4	0730 104 0082	0733 104 0082	0734 104 0009	8,2	0,8	6,3	8,0	5,6	8,2	9,0	2,5
M 5	–	0733 105 0082	–	8,2	–	7,0	–	6,4	8,7	9,0	2,7
M 5	0730 105 0095	0733 105 0095	0734 105 0105	9,5	1,0	7,0	8,5	6,4	8,7	10,5	2,7
M 6	–	0733 106 0095	–	9,5	–	8,6	–	8,0	10,2	10,5	3,0
M 6	0730 106 0127	0733 106 0127	0734 106 0137	12,7	1,0	8,6	10,0	8,0	10,2	14,0	3,0
M 8	0730 108 0127	0733 108 0127	0734 108 0137	12,7	1,0	10,2	12,0	9,6	12,2	14,0	3,5

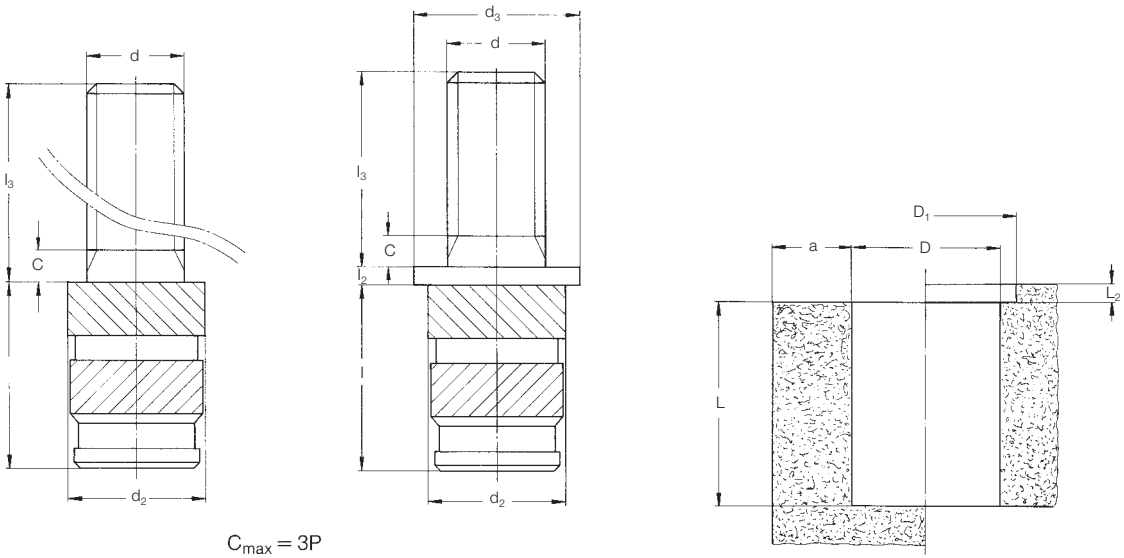
Metric ISO threads to DIN 13-6H.

① Guide values: dependent on component material. Alter after insertion tests, if necessary.
② The flange offers a wide support area, thereby reducing surface pressure. These components are not in stock. Minimum quantity on request.

Other sizes, specials and materials on request.

AMTEC® *ultrasonic installation*

Type 0743 | **Type 0744③** | **Location hole①**



$C_{max} = 3P$

For installation tools and machines, please refer to pages 27–31

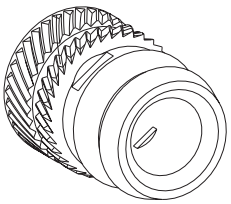
d	Type 0743② Product code	Type 0744② Product code	l	l_2/L_2	l_3	d_2	d_3	$D^{+0,1}$	D_1	$L_{min.}$	$a_{min.}$
M 2	0743 102 0005	0744 102 0005	4,0	0,6	5,0	3,6	5,0	3,2	5,2	4,5	2,0
	0743 102 0010	0744 102 0010	4,0	0,6	10,0	3,6	5,0	3,2	5,2	4,5	2,0
M 2,5	0743 125 0005	0744 125 0005	4,0	0,6	5,0	3,6	5,0	3,2	5,2	4,5	2,0
	0743 125 0010	0744 125 0010	5,8	0,6	10,0	4,6	6,0	4,0	6,2	6,5	2,3
M 3	0743 103 0005	0744 103 0005	5,8	0,6	5,0	4,6	6,0	4,0	6,2	6,5	2,3
	0743 103 0010	0744 103 0010	5,8	0,6	10,0	4,6	6,0	4,0	6,2	6,5	2,3
	0743 103 0015	0744 103 0015	5,8	0,6	15,0	4,6	6,0	4,0	6,2	6,5	2,3
M 3,5	0743 135 0005	0744 135 0005	7,2	0,8	5,0	5,4	7,0	4,8	7,2	8,0	2,5
	0743 135 0010	0744 135 0010	7,2	0,8	10,0	5,4	7,0	4,8	7,2	8,0	2,5
	0743 135 0015	0744 135 0015	7,2	0,8	15,0	5,4	7,0	4,8	7,2	8,0	2,5
M 4	0743 104 0005	0744 104 0005	8,2	0,8	5,0	6,3	8,0	5,6	8,2	9,0	2,5
	0743 104 0010	0744 104 0010	8,2	0,8	10,0	6,3	8,0	5,6	8,2	9,0	2,5
	0743 104 0015	0744 104 0015	8,2	0,8	15,0	6,3	8,0	5,6	8,2	9,0	2,5
M 5	0743 105 0010	0744 105 0010	9,5	1,0	10,0	7,0	8,5	6,4	8,7	10,5	2,7
	0743 105 0015	0744 105 0015	9,5	1,0	15,0	7,0	8,5	6,4	8,7	10,5	2,7
	0743 105 0025	0744 105 0025	9,5	1,0	25,0	7,0	8,5	6,4	8,7	10,5	2,7
M 6	0743 106 0010	0744 106 0010	12,7	1,0	10,0	8,6	10,0	8,0	10,2	14,0	3,0
	0743 106 0015	0744 106 0015	12,7	1,0	15,0	8,6	10,0	8,0	10,2	14,0	3,0
	0743 106 0025	0744 106 0025	12,7	1,0	25,0	8,6	10,0	8,0	10,2	14,0	3,0
M 8	0743 108 0010	0744 108 0010	12,7	1,0	10,0	10,0	12,0	9,6	12,2	14,0	3,5
	0743 108 0015	0744 108 0015	12,7	1,0	15,0	10,0	12,0	9,6	12,2	14,0	3,5
	0743 108 0025	0744 108 0025	12,7	1,0	25,0	10,0	12,0	9,6	12,2	14,0	3,5

Metric ISO threads to DIN 13-6g.

① Guide values: dependent on component material. Alter after insertion tests, if necessary.
② These components are not in stock. Minimum quantity on request.
③ The flange offers a wide support area, thereby reducing surface pressure.

Other lengths, sizes, specials and materials on request.

SONICSERT® SCREWLOCK® *type*



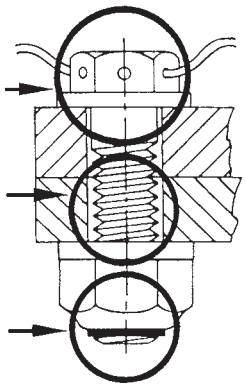
The SONICSERT® SCREWLOCK® is a threaded insert with integrated screw gripping for subsequent thermal and ultrasonic insertion in thermoplastics. The SONICSERT® SCREWLOCK® was designed specifically for applications in which vibrations occur or defined release torques are still required after multiple screwing. The desired screw gripping is achieved by **deliberate** deformation of the female thread. The results for repeated screwing are comparable with the recommendations to DIN 267 part 15 or ISO 2320.

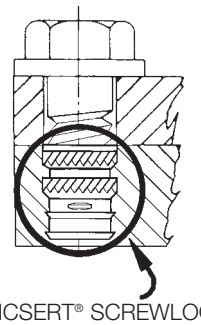
Comparison of screw locking methods

Lock wire

By adhesive in the thread

Locking nut
with plastic ring





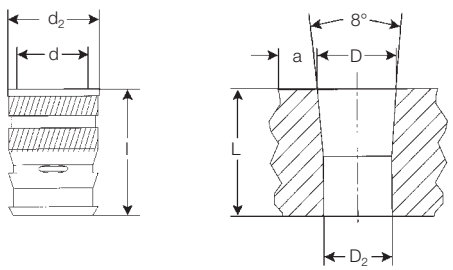
SONICSERT® SCREWLOCK®

Advantages and examples of applications of the SONICSERT® SCREWLOCK®

- Economical, since single element
- Tried and trusted installation possibilities (thermal/ultrasonic insertion)
- Gripping torques similar to DIN 267 part 15 or ISO 2320 recommendations

Examples of applications:

- Loudspeaker attachment
- High pressure cleaners
- Spray heads
- Adjustment screws



Thread size	Product code	d	l	*$D^{+0,1}$ 8°Be	$D_2^{+0,1}$	$a_{min.}$	$L_{min.}$
M 2,5	0937 125 0056	4,4	5,6	4,0	3,6	2,4	6,6
M 3	0937 103 0064	5,6	6,4	5,2	4,7	3,0	7,4
M 3,5	0937 135 0064	5,6	6,4	5,2	4,7	3,0	7,4
M 4	0937 104 0079	6,4	7,9	6,0	5,3	3,4	8,9
M 5	0937 105 0111	8,3	11,1	8,0	7,1	4,4	12,1
M 6	0937 106 0127	9,5	12,7	9,2	8,1	5,0	13,7

*Guide values: dependent on component material. Alter after insertion tests, if necessary.

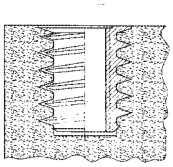
Plastic in plastic type 173

With this plastic threaded insert, it is possible to insert a high-strength thread by screwing (reverse-locked) into different foam materials, wood, polyolefines, etc. Component and insert can be reground and separated by simple methods. With “related” or identical materials, there is no need to separate the materials.

The imminent “legislation on the avoidance, reduction and utilisation of wastes of used electric and electronic equipment” will come into force in the near future as the **Electronic Scrap Regulations.**

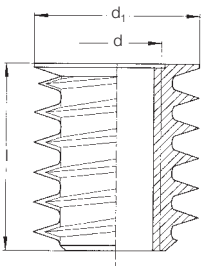
Prepare for it now! Our plastic threaded inserts will make your plastic components completely recyclable.

Principle

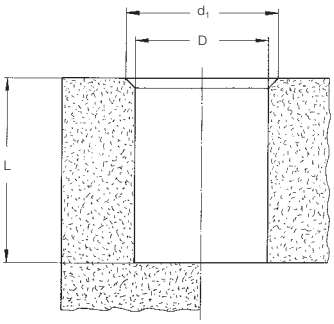


The threaded insert is screwed into the component after it has been removed from the mould. Because of the radially expanding outside thread diameter, the threaded insert forms its own locating thread in the cylindrical hole in the component. The thread mismatch provides self-locking and the insert therefore makes for a reliable interference fit.

Type 173



Location hole①



Draft of 0,5° allowable for removal from the mould

Bevel can be omitted for soft materials.

Material code — Colour code

Product code 1731 303 0006

Material: 1: PA GF (blend) 7: PPA GF

Colouring: 3 (standard): black
Other colours for appropriate batch sizes on request.

Strength values:

For installation tools and machines, please refer to pages 27–31

d	Product code	Insert material	d_1	l	D +0,1
M 3	1731 303 0006	PA GF (blend)	6,8	6,0	4,7
M 4	1731 304 0008		7,8	8,0	5,6
M 5	1731 305 0010		9,4	10,0	6,8
M 6	1731 306 0014		11,2	14,0	7,6 / 8,5
M 8	1731 308 0015		13,2	15,0	10,3 / 10,5
M 10	1731 310 0018		15,2	18,0	11,8 / 12,5

Example: M5 threaded insert combined with other materials.

M 5	1731 305 0010	PA GF (blend)	9,4	10,0	7,0

① Location hole drilled, alter after insertion tests, if necessary.
Permissible tightening torques depend on the insert material and tightening method.

Minimum quantity on request.
International patents applied for and granted.

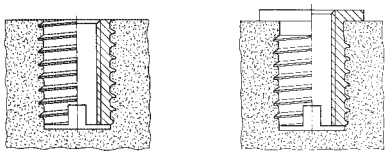
QUICKSERT®
self-tapping threaded insert

Advantages

- for brittle and ductile plastics, e.g. unsaturated polyester resins (SMC, injection moulding of glass fibre reinforced plastic), polyurethane and glass fibre reinforced thermoplasts
- universally usable
- heavy-duty and torsion-proof thread
- optimum installation properties

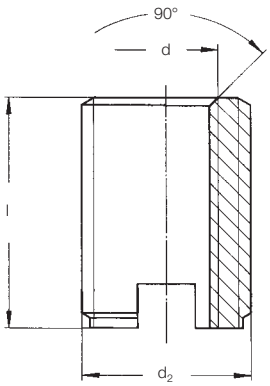
Material: 9 SMnPb 28 K, zinc-plated, chromated or Cu Zn 38 Pb 2

Principle

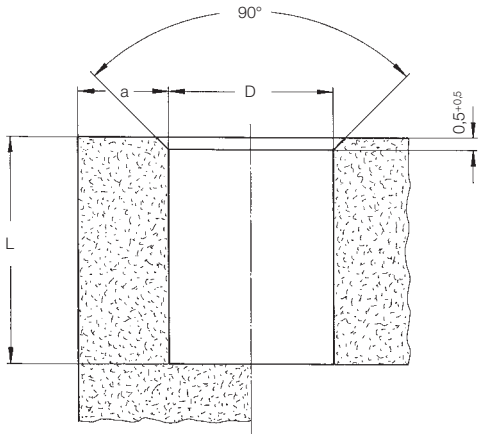


The **QUICKSERT®** consists of a cylindrical body with a female thread and a special outer thread. The outer thread profile features an extremely low angle and increases asymmetrically to the root of the thread. Installation with a low screwing torque is therefore optimised. With an ideal distribution of load, a high performance fixing is achieved. The insert has a cutting slot across the base. A version with a flange is available for special requirements. The threaded insert is inserted by self-tapping using a rotating spindle.

Type 1434



Location hole①



For installation tools and machines, please refer to pages 27–31

d	Steel, unhardened Product code	Brass Product code	l	d_2	D①	$L_{min.}$	$a_{min.}$
M 3	1434 103 0006	1434 503 0006	6,0	6,0	4,6– 5,4	7,0	2,0
M 4	1434 104 0008	1434 504 0008	8,0	7,0	5,6– 6,6	9,0	3,0
M 5	1434 105 0010	1434 505 0010	10,0	8,0	6,6– 7,6	11,0	4,0
M 6	1434 106 0014	1434 506 0014	14,0	10,0	8,1– 9,4	15,0	4,0
M 8	1434 108 0015	1434 508 0015	15,0	12,0	10,1–11,4	16,0	5,0
M 10②	1434 110 0018	1434 510 0018	18,0	14,0	12,1–13,4	19,0	5,0

Metric ISO threads to DIN 13-6H.

① Guide values: dependent on component material. Alter after insertion tests, if necessary.
② These components are not in stock. Minimum quantity on request.
③ Hardened on request.
* yellow chromated = unhardened, white chromated = hardened

Other dimensions and specials on request.

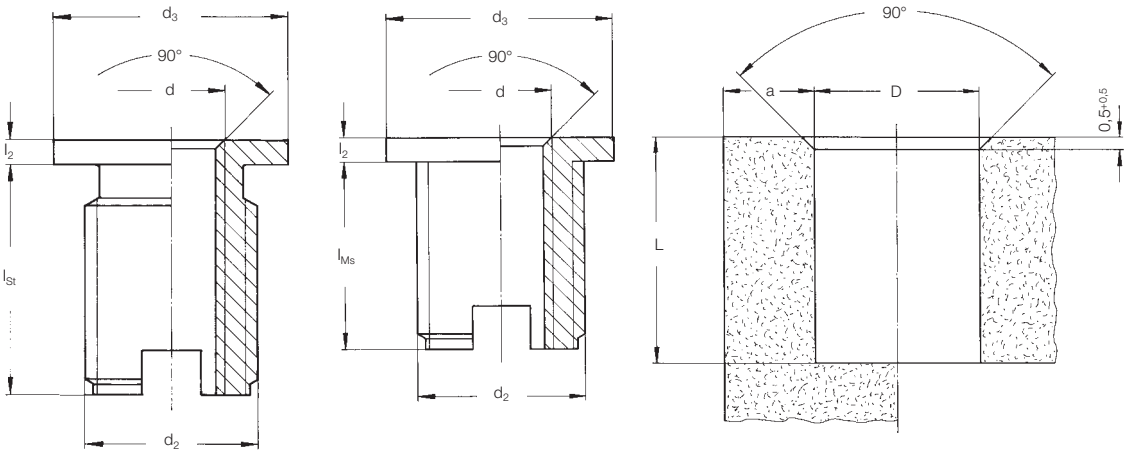
International patents applied for and granted.

AMTEC® *self-tapping installation*

Type 1433②
Steel

Brass

Locating hole①



Recommended locating holes -D- for QUICKSERT® in various materials①

	M3	M4	M5	M6	M8	M10
PE (soft) PP	4,6	5,6	6,6	8,1	10,1	12,1
PA 6 PA 6.6 PBT PE (hard) PET POM	4,8	5,8	6,8	8,3	10,3	12,3
ASA SAN	5,0	6,0	7,0	8,5	10,5	12,5
ABS PA 6 GF 30 % PBT GF 30 % PET GF 30 % PS PVC (hard)	5,2	6,2	7,2	8,7	10,7	12,7
PA 6.6 GF 30 % PC and PC + GF 30 % PPO/PPS GF 30 %	5,4	6,4	7,4	9,0	11,0	13,0
SMC ZMC BMT		6,6	7,6	9,4	11,4	13,4

Hexagonal flange version on request

For installation tools and machines, please refer to pages 27–31

d	Steel, unhardened Product code	Brass Product code	l_{St}	l_{MS}	l_2	d_2	d_3	D①	$L_{min.\ St}$	$L_{min.\ Ms}$	$a_{min.}$
M 4	1433 104 0105	1433 504 0009	9,5	8,0	1,0	7,0	10,0	5,6– 6,6	10,5	9,0	3,0
M 5	1433 105 0127	1433 505 0112	11,5	10,0	1,2	8,0	11,0	6,6– 7,6	12,5	11,0	4,0
M 6	1433 106 0174	1433 506 0154	16,0	14,0	1,4	10,0	13,0	8,1– 9,4	17,0	15,0	4,0
M 8	1433 108 0184	1433 508 0164	17,0	15,0	1,4	12,0	15,0	10,1–11,4	18,0	16,0	5,0

Metric ISO threads to DIN 13-6H.

① Guide values: dependent on component material. Alter after insertion tests, if necessary.
② The flange offers a wide support area, thereby reducing surface pressure.
③ Hardened on request.
* yellow chromated = unhardened, white chromated = hardened

Other dimensions and specials on request.

International patents applied for and granted.

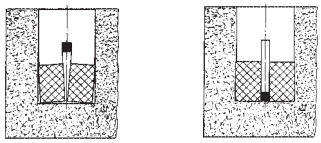
EXPANSIONSERT 1

Advantages

- Universal threaded insert for thermoset and thermoplastic components
- Heavy-duty thread by expansion anchoring
- Rapid, economical installation

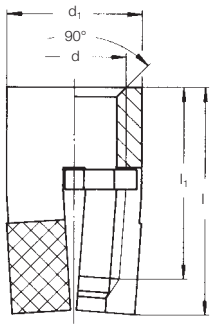
Material: Cu Zn 38 Pb 2

Principle

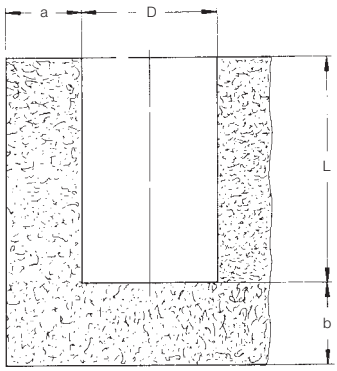


The **EXPANSIONSERT 1** threaded insert consists of a vertically cross-slotted body with a female thread, outer diamond knurls and an expanding plate. On installing the threaded insert in the locating hole, the knurled section is forced apart by downward pressure on the expanding plate and thereby anchored in the wall of the hole.

Type 0230
EXPANSIONSERT 1 standard



Locating hole①



For installation tools and machines, please refer to pages 27–31

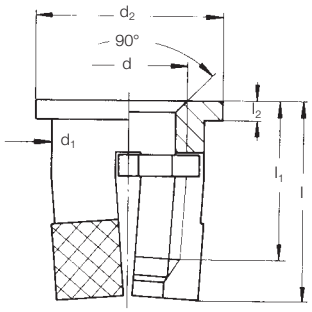
d	Product code	d_1	l	l_1 min.	$D^{+0,1}$	L	$a_{min.}$	$b_{min.}$
M 2,5	0230 025 0065	4,0	6,5	4,0	4,0	6,5	2,4	3,2
M 3	0230 903 0001	4,0	6,5	4,0	4,0	6,5	2,4	3,2
	0230 003 0065	4,8	6,5	4,0	4,8	6,5	2,9	3,2
M 3,5	0230 035 0008	4,8	8,0	5,0	4,8	8,0	2,9	4,0
M 4	0230 004 0095	5,5	9,5	6,5	5,5	9,5	3,3	4,7
	0230 004 0008	5,5	8,0	5,0	5,5	8,0	3,3	4,0
M 5	0230 005 0011	6,5	11,0	7,5	6,5	11,0	3,9	5,5
	0230 005 0008	6,5	8,0	4,5	6,5	8,0	3,9	4,0
M 6	0230 006 0125	8,0	12,5	8,5	8,0	12,5	4,8	6,2
M 8	0230 008 0016	11,0	16,0	11,0	11,0	16,0	6,6	8,0

Metric ISO threads to DIN 13-6H.
① Guide values: dependent on component material. Alter after insertion tests, if necessary.

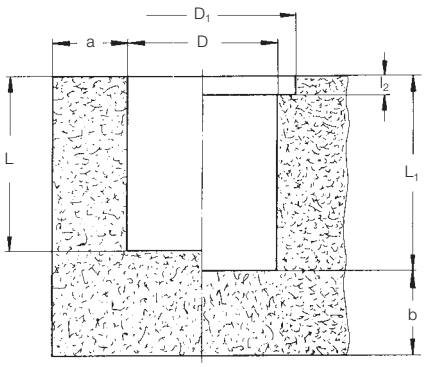
Other dimensions and specials on request.

Type 0231①

EXPANSIONSERT 1 flanged



Locating hole①



For installation tools, please refer to pages 27–31

d	Product code	l	d_1	d_2	$l_{1\ min.}$	l_2	$D^{+0,1}$	$D_1^{+0,2}$	L	L_1	$a_{min.}$	$b_{min.}$
M 2,5	0231 025 0006	6,0	4,0	5,5	3,6	0,8	4,0	5,5	5,2	6,0	2,4	3,2
M 3	0231 003 0006	6,0	4,8	6,3	3,5	0,8	4,8	6,3	5,2	6,0	2,9	3,2
M 3,5	0231 035 0075	7,5	4,8	6,3	4,7	0,8	4,8	6,3	6,7	7,5	2,9	4,0
M 4	0231 004 0075	7,5	5,5	7,0	4,4	0,8	5,5	7,0	6,7	7,5	3,3	4,7
M 5	0231 005 0085	8,5	6,5	8,0	5,0	0,8	6,5	8,0	7,7	8,5	3,9	5,5
M 6	0231 006 0011	11,0	8,0	10,0	7,0	0,8	8,0	10,0	10,2	11,0	4,8	6,2

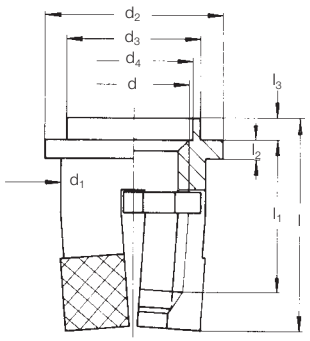
Metric ISO threads to DIN 13-6H.
Delivery conditions according to DIN 267.

① Guide values: dependent on component material. Alter after insertion tests, if necessary. The flange offers a wide support area, thereby reducing surface pressure.

Other dimensions and specials on request.

Type 0232

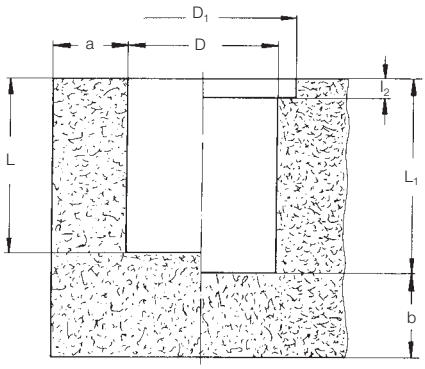
EXPANSIONSERT 1 clinched



The flared flange is designed for securing contact components and terminal tags and aids fixing of an applied cover.

Locating hole①

(dimensions as type 0231)



For installation tools, please refer to pages 27–31

d	Product code	l	d_1	d_2	$d_{3\ max.}$	d_4	$D^{+0,1}$	$D_1^{+0,2}$	$l_{1\ min.}$	l_2	l_3
M 2,5	0232 025 0007	7,0	4,0	5,5	3,6	2,8	4,0	5,5	3,6	0,8	1,0
M 3	0232 003 0007	7,0	4,8	6,3	4,1	3,3	4,8	6,3	3,5	0,8	1,0
M 3,5	0232 035 0085	8,5	4,8	6,3	4,6	3,8	4,8	6,3	4,7	0,8	1,0
M 4	0232 004 0085	8,5	5,5	7,0	5,1	4,3	5,5	7,0	4,4	0,8	1,0
M 5	0232 005 0095	9,5	6,5	8,0	6,1	5,3	6,5	8,0	5,0	0,8	1,0
M 6	0232 006 0012	12,0	8,0	10,0	7,1	6,3	8,0	10,0	7,0	0,8	1,0

Metric ISO threads to DIN 13-6H.

① Guide values: dependent on component material. Alter after insertion tests, if necessary.

Other dimensions and specials on request.

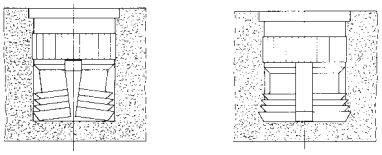
EXPANSIONSERT 2

Advantages

- For reactive resin, PUR, integral hard foam, elastomers and also wood composite materials
- Wear-resistant thread
- Rapid, economical installation

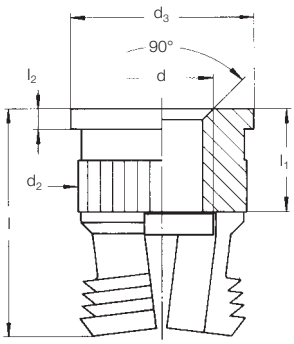
Material: Cu Zn 38 Pb 2

Principle

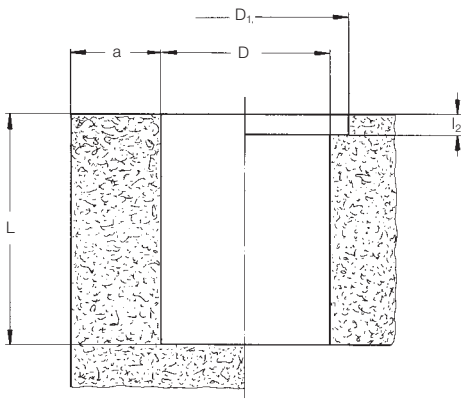


The **EXPANSIONSERT 2** threaded insert consists of a body with a female thread, with a flange and undercuts on the surface. The body has a captive expansion plate, which is forced downwards on installing the threaded insert in the locating hole, thus forcing the lower, slotted section of the **EXPANSIONSERT 2** apart and anchoring its vanes in the wall of the hole. The threaded insert is therefore protected reliably against pull-out and distortion.

Type 0235



Locating hole①



For installation tools and machines, please refer to pages 27–31

d	Product code	l	d_2	d_3	l_1	l_2	$D^{+0,1}$	D_1	$L_{min.}$	$a_{min.}$
M 3	0235 103 0008	8,0	5,9	7,0	3,0	0,8	5,5	7,2	8,2	4,0
M 3,5	0235 135 0008	8,0	5,9	7,0	3,5	0,8	5,5	7,2	8,2	4,0
M 4	0235 104 0095	9,5	6,9	8,0	4,0	0,8	6,5	8,2	9,8	5,0
M 5	0235 105 0011	11,0	8,4	10,0	5,0	0,8	8,0	10,2	11,3	6,0
M 6	0235 106 0125	12,5	8,4	10,0	6,0	0,8	8,0	10,2	12,8	6,0

Metric ISO threads to DIN 13-6H.

① Guide values: dependent on component material. Alter after insertion tests, if necessary.

Other dimensions and specials on request.

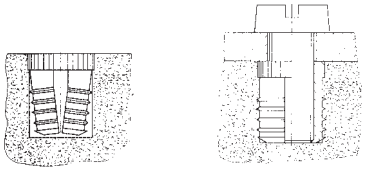
SPREDSERT® 1

Advantages

- For thermoplastic components
- Retaining flange and anchor rings provide a high degree of safety against distortion and tensile loads
- Screw gripping

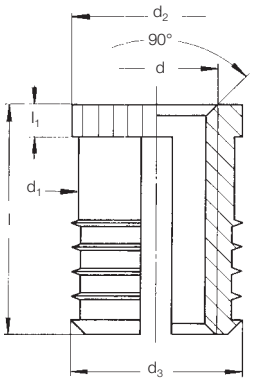
  Material: Cu Zn 38 Pb 2

Principle

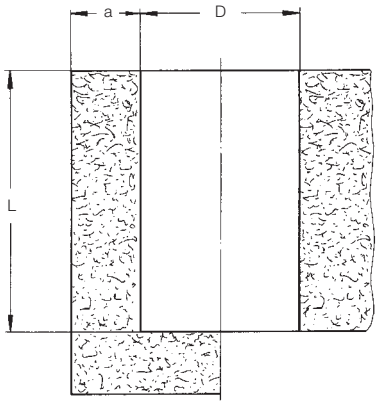


The **SPREDSERT® 1** is inserted into the locating hole until the retaining flange is fully anchored in the plastic. At the same time, the slotted section is forced together. The screw forces the radially secured **SPREDSERT® 1** open causing the anchor rings to bite into the plastic and ensure a firm hold of the threaded insert. Screw locking is also achieved via this process. The tightening torque is to be increased by 10% for the additional expansion force.

Type 0831–0833



Locating hole①



For installation tools and machines, please refer to pages 27–31

d	Product code	No. of anchor rings	d_1	d_2	d_3	l	l_1	$D^{+0,1}$	$L_{min.}$	$a_{min.}$
M 2	0832 102 0004	3	3,15	3,7	3,6	4,0	0,6	3,2	4,5	2,0
M 2,5	0832 125 0005	3	3,9	4,5	4,4	5,0	0,75	4,0	5,5	2,5
M 3	0832 103 0005	3	3,9	4,5	4,4	5,0	0,75	4,0	5,5	3,0
M 3,5	0832 135 0065	3	4,7	5,3	5,2	6,5	1,0	4,8	7,1	3,2
M 4	0833 104 0008	4	5,35	6,0	5,9	8,0	1,3	5,5	8,7	3,5
M 5	0833 105 0095	5	6,35	7,0	6,9	9,5	1,3	6,5	10,3	4,0
M 6	0831 106 0011	5	7,85	8,5	8,4	11,0	2,0	8,0	12,0	5,0
M 8	0831 108 0013	5	9,5	9,95	9,9	13,0	2,0	9,6	14,0	7,0

Metric ISO threads to DIN 13-6H.

① Guide values: dependent on component material. Alter after insertion tests, if necessary.

Other dimensions and specials on request.

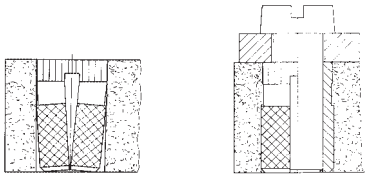
SPREDSERT® 2

Advantages

- For thermoset components
- Retaining flange and diamond knurling provide a high degree of safety against distortion and tensile loads
- Screw gripping

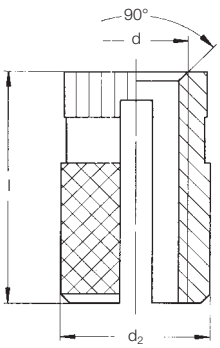
  Material: Cu Zn 38 Pb 2

Principle

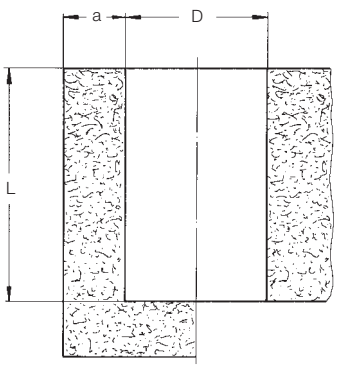


The **SPREDSERT® 2** is inserted into the locating hole until the retaining flange is fully anchored in the plastic. At the same time, the slotted section is forced together. The screw forces the radially secured **SPREDSERT® 2** open causing the diamond knurling to bite into the plastic and ensure a firm hold of the threaded insert. Screw locking is also achieved via this process. The tightening torque is to be increased by 10% for the additional expansion force.

Type 0837



Locating hole①



For installation tools and machines, please refer to pages 27–31

d	Product code②	l	d_2	$D^{+0,1}$	$L_{min.}$	$a_{min.}$
M 3	0837 103 0005	5,0	4,3	3,9	5,5	3,0
M 3,5	0837 135 0064	6,4	5,1	4,7	7,0	3,3
M 4	0837 104 0008	8,0	6,0	5,5	8,5	3,5
M 5	0837 105 0095	9,5	6,8	6,3	10,0	4,0
M 6	0837 106 0127	12,7	8,4	7,9	13,5	5,0

Metric ISO threads to DIN 13-6H.

① Guide values: dependent on component material. Alter after insertion tests, if necessary.
② These components are not in stock. Minimum quantity on request.

Other dimensions and specials on request.

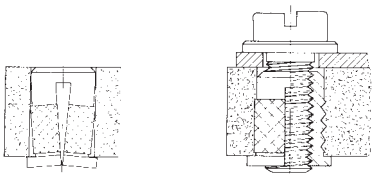
SPREDSERT® with retaining flange

Advantages

- For thermoset and thermoplastic components
- Heavy-duty thread in through holes
- Screw gripping

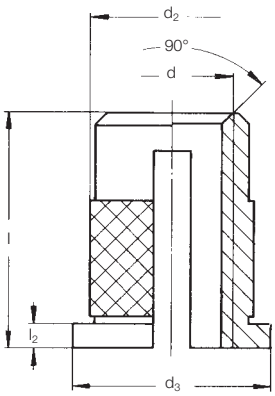
Material: Cu Zn 38 Pb 2

Principle

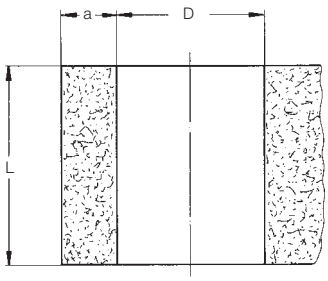


The **SPREDSERT®** with retaining flange is placed in the through hole from the underside until the flange is seated. At this point, the slotted, diamond-knurled anchoring section is compressed. When a screw is inserted, the diamond-knurled section of the threaded insert is forced open and the diamond knurling bites into the plastic. The retaining flange acts as a shoulder and provides a high degree of protection against pull-out. Screw locking is also achieved via this process. The tightening torque is to be increased by 10% for the additional expansion force.

Type 0835



Locating hole①



For installation tools and machines, please refer to pages 27–31

d	Product code	l	d_2	d_3	l_2	$D^{+0,1}$	$L_{min.}$	$a_{min.}$
M 3	0835 103 0048	4,8	4,3	5,5	0,5	3,9	4,5	3,2
M 3,5	0835 135 0064	6,4	5,1	6,3	0,7	4,7	6,0	3,6
M 4	0835 104 0008	8,0	6,0	7,0	0,8	5,5	7,5	4,0
M 5	0835 105 0095	9,5	6,8	8,0	1,0	6,3	9,0	4,8
M 6	0835 106 0127	12,7	8,4	9,5	1,3	7,9	12,0	6,0
M 8	0835 108 0127	12,7	9,9	11,0	1,3	9,4	12,0	7,1

Metric ISO threads to DIN 13-6H.

① Guide values: dependent on component material. Alter after insertion tests, if necessary.

Other dimensions and specials on request.

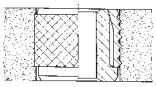
QUICKSERT®
type 1230

Advantages

- No tapping
- Rapid, economical installation
- Chipping-free installation in smooth location holes
- Stable thread in light alloys
- Stable thread in thermoplastic and thermoset materials** after removal from the mould
- Suitable for one-sided accessibility of the insertion site
- For screw connections to be separated as often as required
- Can be installed in already finished surfaces

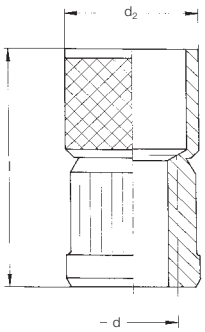
Material: 9 SMnPb 28 K, zinc-plated, chromated*, or Cu Zn 38 Pb 2

Principle

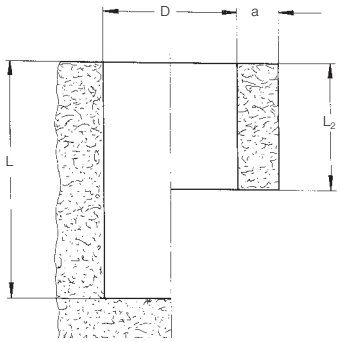


The **QUICKSERT®** expansion insert is spun onto the rotating threaded mandrel of the setting tool and introduced into the locating hole. The latter may be preformed or machined with commercially available drills as a blind or through hole. The axial loading of the threaded mandrel causes the **QUICKSERT®** to shear at the predetermined point between the anchoring sleeve and the threaded section.
The latter is drawn into and expands the anchoring sleeve, forcing the knurls into the hole wall. The threaded insert is now anchored and protected against distortion and pull-out.

Type 1230



Locating hole①



For installation tools and machines, please refer to pages 27–31

d	Steel Product code	Brass Product code	Overall length l	Overall installed length l_1	Knurl dia. ø d_2	Locating hole ø$D^{+0,1}$	L_{min}	L_{2min}	a*
M3	1230 003 0048	1230 103 0048	8,0	4,8	5,5	5,5	8,8	4,8	2
M4	1230 004 0063	1230 104 0063	10,5	6,3	6,5	6,5	11,8	6,3	2
M5	1230 005 0082	1230 105 0082	13,5	8,2	7,5	7,5	15,2	8,2	2,5
M6	1230 006 0098	1230 106 0098	16,0	9,8	9	9	18,8	9,8	3
M8	1230 008 0 115	1230 108 0 115	19,0	11,5	12	12	21,0	11,5	4

Brass threaded inserts are recommended for installation in plastic. Special lengths in addition to special thread diameters and other material on request.

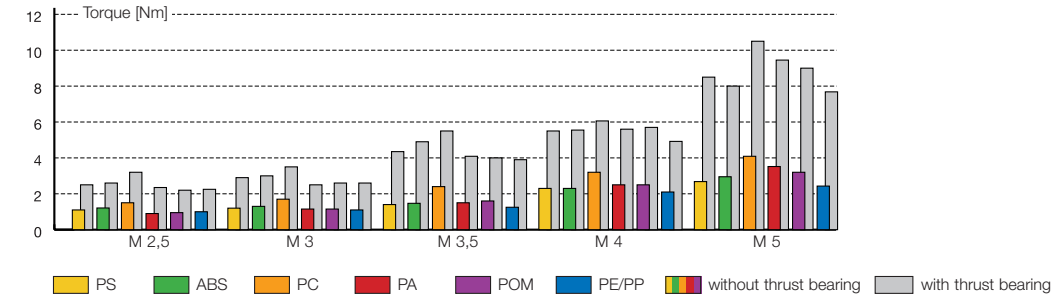
* Guide values: Increase after insertion tests, if necessary, e. g. for brittle materials.

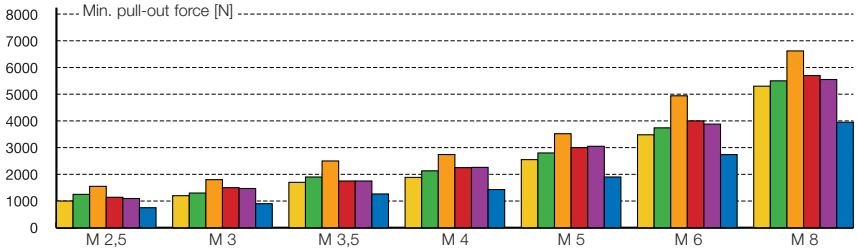
** This insert is to be specifically checked for suitability for stress crack-susceptible materials (e. g. PC, PPO).

AMTEC® torque and pull-out values

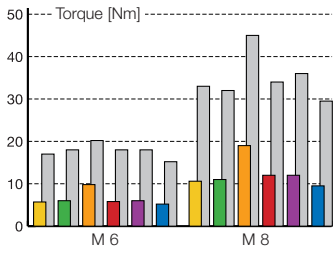
Thermal installation

HITSERT®2

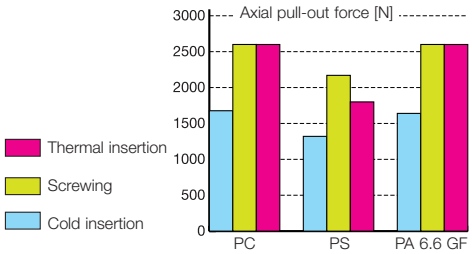




HITSERT®2

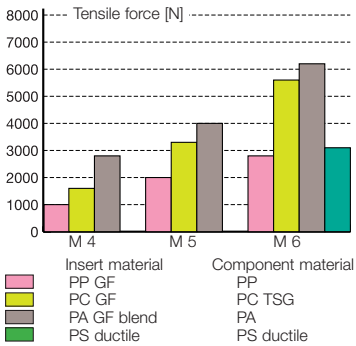


HITSERT®3 with M4

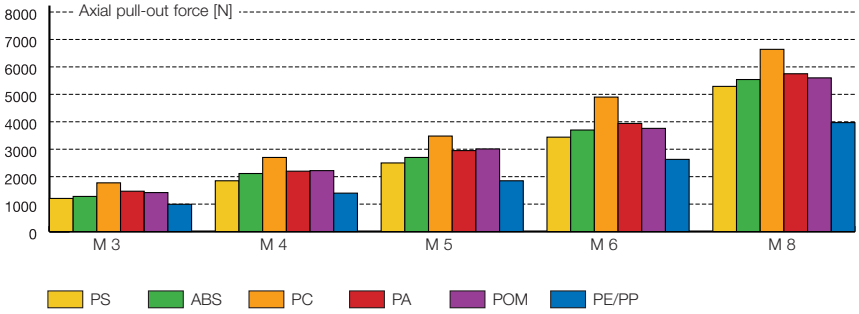


Ultrasonic installation

Plast. in plast. type 163



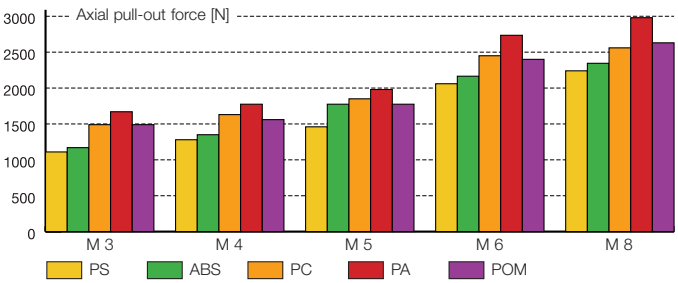
SONICSERT®



Expansion anchoring

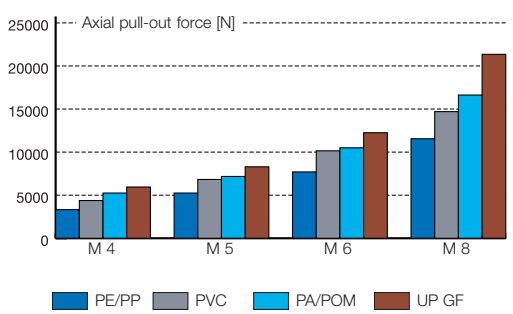
EXPANSIONSERT 1

SPREDSERT®

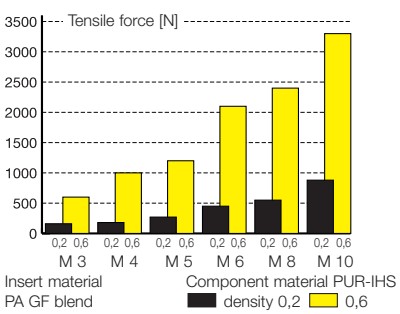


Self-tapping – installation

QUICKSERT®



Plast. in plast. type 173



Technical notes

The stated values are guideline values only. We recommend that an insertion test be performed for the respective application.

In case of fibre-reinforced plastics, the mechanical strength properties of the non-reinforced material should be adopted for safety's sake.

When using brass threaded inserts in stress crack-susceptible plastics (e.g. polycarbonate), we recommend additional surface treatment of the threaded insert (nickel or zinc plating).

Mechanical strength properties for other threaded inserts are available on request.

*Customer-specific solutions based on **AMTEC®** threaded inserts*

HITSERT® 2
with oval through hole/brass

HITSERT®2
slotted compression limiter/brass

QUICKSERT®
expansion insert with flange/steel

SONICSERT®
with fixing hole/brass

EXPANSIONSERT 1
with hexagonal flange/brass

HITSERT®2
sealing insert with separate
O-ring/brass

HITSERT®3
sealing insert
hose connector/brass

*Installation tools for **AMTEC®** threaded inserts*

Manual installation tools

EXPANSIONSERT 1, EXPANSIONSERT 2, SPREDSERT® 1 and 2
Fitting mandrel for manual installation of **EXPANSIONSERT 1** and **EXPANSIONSERT 2** threaded inserts

	EXPANSIONSERT 1 standard	**EXPANSIONSERT 1** flange/clinch	**EXPANSIONSERT 2**	**SPREDSERT®**
	Product code	Product code	Product code	Product code
M 2,5	0250 025 0065	0253 025 0006	–	0851 125 0000
M 3	0250 003 0065	0253 003 0006	0254 103 0008	0851 103 0000
M 3,5	0250 035 0008	0253 035 0075	–	0851 135 0000
M 4	0250 004 0095	0253 004 0015	0254 104 0095	0851 104 0000
	0250 004 0008	0253 004 0015	0254 104 0095	0851 104 0000
M 5	0250 005 0011	0253 005 0085	0254 105 0011	0851 105 0000
	0250 005 0008	0253 005 0085	0254 105 0011	0851 105 0000
M 6	0250 006 0125	0253 006 0011	0254 106 0125	0851 106 0000
M 8	0250 008 0016	–	–	0851 108 0000

QUICKSERT® expansion insert type 1230

	Product code
M 5	2353 010 5000
M 6	2353 010 6000
M 8	2353 010 8000

Semi-automatic tools

EXPANSIONSERT 1, EXPANSIONSERT 2
The tool can be incorporated in manual lever presses or other pressing devices

QUICKSERT® self-tapping installation, plastic in plastic type 173, **HITSERT® 3**
Adaptable to upright drilling machines or cordless screwdrivers

■ for small to medium scale production

Example for tool application

EXPANSIONSERT 1, EXPANSIONSERT 2

QUICKSERT®, Plastic in plastic type 173

	EXPANSIONSERT 1 standard	**EXPANSIONSERT 1** flange/clinch	**EXPANSIONSERT 2**	**QUICKSERT®**, plast. in plast. manual installation	Semi-automatic
	Product code	Product code	Product code	Product code	Product code
M 2,5	–	0263 025 0006	–	–	–
M 3	0260 003 0065	0263 003 0006	0264 103 0008	1450 010 3000	1460 020 3050
M 3,5	0260 035 5008	0263 035 0075	0264 103 5008	–	–
M 4	0260 004 0095	0263 004 0075	0264 104 0095	1450 010 4000	1460 020 4050
	0260 004 0008	0263 004 0075	0264 104 0095	1450 010 4000	1460 020 4050
M 5	0260 005 0011	0263 005 0085	0264 105 0011	1450 010 5000	1460 020 5050
	0260 005 0008	0263 005 0085	0264 105 0011	1450 010 5000	1460 020 5050
M 6	0260 006 0125	0263 006 0011	0264 106 0125	1450 010 6000	1460 020 6050
M 8	–	–	–	1450 010 8000	1460 020 8050
M 10	–	–	–	1450 011 0000	1460 021 0050

Semi-automatic tools

EXPANSIONSERT 1, EXPANSIONSERT 2, SPREDSERT® 1 and 2

-Automatic installation machine, incl. spiral conveyor, singling device and automatic feed

- for large scale production

QUICKSERT® expansion anchoring

The setting tool **P 2001** allows rapid and secure installation.

- for large scale production

Nominal dia. Ø	Complete tool Product code	Replacement unit Product code
M 3	2361 530 3000	2361 130 3010
M 4	2361 530 4000	2361 130 4010
M 5	2361 530 5000	2361 130 5010
M 6	2361 530 6000	2361 130 6010
M 8	2361 530 8000	2361 130 8010

QUICKSERT® self-tapping screwing, with flange plastic in plastic type 173

Universal rapid screwing system BM 2100

UNIQUICK® system

with manually guided telescopic screwdriver as a special version with automatic threaded insert feed.

- for large scale production (dimensions on request)

Semi-automatic tools

QUICKSERT® self-tapping screwing, plastic in plastic type 173, **HITSERT® 3** pneumatic screwdriver

- high performance by automatic reverse on reaching the preset torque
- stationary operation by adaptation to parallel guide
- medium to large scale production

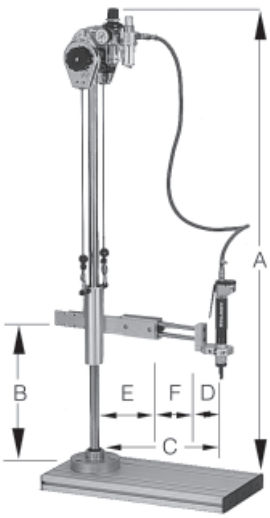
	Complete tool Product code	Replacement unit Product code
M 3	1460 030 3000	1460 030 3050
M 4	1460 030 4000	1460 030 4050
M 5	1460 030 5000	1460 030 5050
M 6	1460 030 6000	1460 030 6050
M 8	1460 030 8000	1460 030 8050
M 10	1460 031 0000	1460 031 0050
Matching parallel guide	B 65000	0182 060 0010

Parallel guide and accessories for AMTEC® installation tools

Tool stand refer to illustration	B 65 000 Product code	Height A	Stroke B	Working area C	Receptacle D	Working radius E	Stroke F	Weight without tool
Tool stand	0182 060 0010	1125	730	220-600	60	160-280	260	8 kg

Included in delivery:

- 3 axis guide system
- tool receptacle
- 2 balancers, product code 0196 000 1001, total load bearing capacity 0 – 2 kg
- Base plate in extruded aluminium profile with grooves, dimensions w x h x l: 40 x 240 x 500 mm



The working radius E of the gibbet is adjustable in 28 mm increments in the range of 160 – 280 mm.
Horizontal stroke F = 260 mm
E and F yield a working area of 220 – 600 mm
Finely adjustable spring tension according to load.

Accessories:

Type	Dimensions	B 65 000 Product code
Maintenance unit	at 6 bar nominal flow G ¼″ = 700 L/min	0196 000 1001
Balancer	Load bearing capacity up to 1 kg	0196 000 1101
Balancer	Load bearing capacity 1 – 2 kg	0196 000 1102
Balancer	Load bearing capacity 3 – 5 kg	0196 000 1103
Additional handle span diameter-Ø 43 mm	To fit tool: 1460…	0196 000 1201
Air line	LW 6	0196 000 1130
Air line clamp	8 – 12 mm	0196 000 1150
Air line nozzle	G ⅛″-6	0196 000 1151
Air line nozzle	G ¼″-6	0196 000 1152
Exhaust air line	Ø 15 mm	0196 000 1131

*Universal installation machine type KVT basic for **AMTEC**® threaded inserts*

Economical thermal installation of metal threaded inserts (HES)

suitable for single and multiple installation of **HITSERT® 2, HITSERT® 3** and **SONICSERT®**

Thermal installation of metal threaded inserts by electromagnetic resistance welding (ERW)

suitable for single and multiple installation of **HITSERT® 2, HITSERT® 3** and **SONICSERT®**

especially

- large volume inserts > M 8
- very small inserts ≤ M 2
- multiple installation

Ultrasonic installation (USW)

suitable for **SONICSERT®** up to max. M 6 **plastic in plastic type 163**

Friction welding of plastic threaded inserts and screw welded joints (FW)

suitable for **UNITEC® plastic in plastic** self-tapping plastic screw

*Extended range overview for KVT thermal installation machines for **AMTEC®** threaded inserts*

All machines are suitable for economical processing of **HITSERT®2, HITSERT®3** and **SONICSERT®**

Low-cost machines

Manual lever press

Manual installation gun

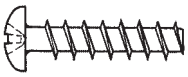
High-tech

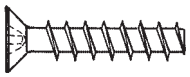
10-item thermal installation (HES) semi-automatic

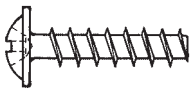
Numerically controlled installation machine with automatic feed and threaded insert preheating

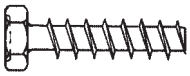
Extended range overview for direct screwing into plastics

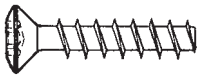
AMTEC® *screws*

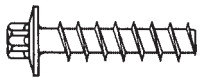

B 52004


B 52005


B 52006


B 52007


B 52008


B 52009

"in detail"

- Suitable for all thermoplasts (and thermosets).
- The standard version corresponds to mechanical strength class 10.9, other materials and finishes on request.
- Favourable ratio of outer diameter to core diameter, high axial forces.
- Optimum machinability, since screwing torques and overwind torques are wide apart.

Tribular cross-section

- Screwing torques are reduced.
- Reserve spaces result in which displaced plastic can flow away without causing damage.

Thread pitch

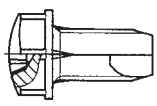
- The thread pitch is adapted in such a way that the pitch angle lies above the self-locking threshold.
- The thread pitch allows broad flank coverage, reduces surface pressure and counteracts relaxation tendencies in the plastic.

The 30° pitch angle

- Reduces radial stresses and is a prerequisite for construction suited to plastics.

B 52004 to B 52006 available dimensions from 2.5 – 6.0 mm, B 52007 to B 52009 on request.

UNITEC® *self-tapping plastic screws*


Plastic in plastic

A firm, self-locking join for plastic components can be created using this plastic screw. Material, shape and dimensions on request. Further information is available in our brochure 4330.

Extended range overview for direct screwing into plastics

The system concept

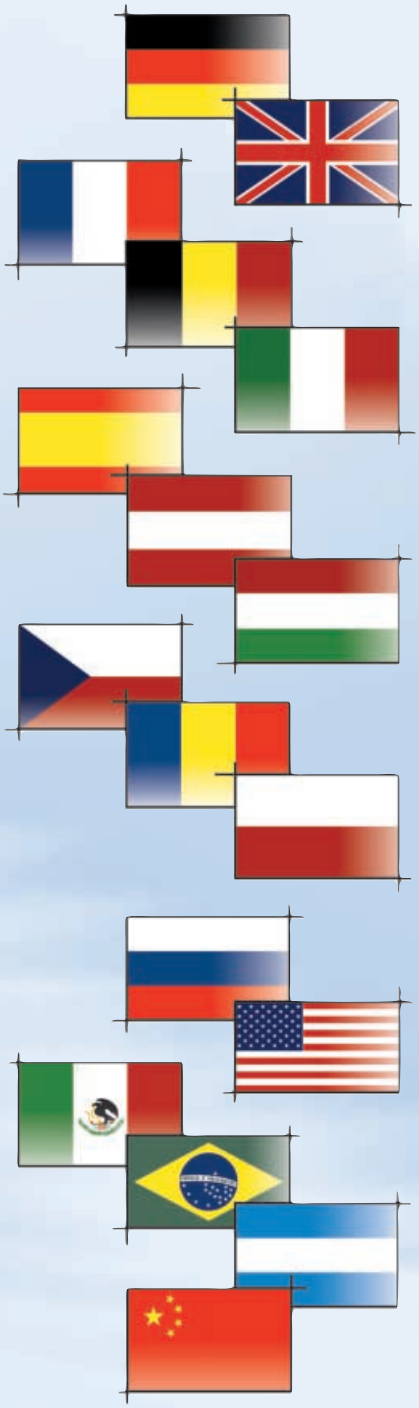
Behind the brand name **AMTEC®** direct screw connections lies not just another self-tapping screw for plastic materials, but a complete system solution from a single supplier:

- A highly efficient screw, specially adapted to the conditions specific to plastic structures.
- Competent advice in terms of application technology.
- Screw insertion tests tailored to the customer in order to determine the requisite parameters for serial manufacture.
- An optimum screw system, tailored to the customer's wishes (including process monitoring).

Installation system for direct screwing of plastics

- The **UNIQUICK®** universal telescopic screwdriver BM 2100 with automatic screw feed.
- **PANTHER®** – The forward feed screwdriver BM 3100 with automatic screw feed.
- **PANTHER®** – The forward feed screwdriver with impulse motor BM 3103 for example, with automatic screw feed.
- Electric forward feed screwdriver BM 3200 with automatic screw feed.
- **MULTIQUICK®** – Stationary forward feed screwdriver systems and machine components.
- BM 2100 ST with stationary telescopic screwdrivers TSS 01 – TSS 03.
- TiNBit GA special alloy bits.

Böllhoff international



Nord-Europa
Wilhelm Böllhoff GmbH & Co. KG, Bielefeld
Böllhoff GmbH, Bielefeld mit Niederlassungen
in Bielefeld, Braunschweig, Burgau, Dormagen,
Leipzig, München, Nürnberg und Stuttgart,
Böllhoff Verbindungstechnik GmbH, Bielefeld
Böllhoff Systemtechnik GmbH & Co. KG, Bielefeld,
Böllhoff Schraubtechnik GmbH, Bielefeld
Böllhoff Produktion GmbH & Co. KG, Bielefeld und Sonnewalde,
Deutschland

Bollhoff Fastenings Ltd., Birmingham, Großbritannien

Südwest-Europa
Bollhoff Otalu s. a., La Ravoire,
Bollhoff Usinec s. a., Paris,
Frankreich

Bollhoff S.P.R.L., Aalst, Belgien

Bollhoff s.r.l., Mailand, Italien

Bollhoff s.a., Madrid, Spanien

Südost-Europa
Böllhoff GmbH, Linz, Österreich

Böllhoff Kft, Székesfehérvár, Ungarn

Böllhoff s. r. o., Prag, Tschechische Republik

Böllhoff s.r.l., Bors, Rumänien

Bimex-Böllhoff*, Łańcut und Lipno, Polen

Böllhoff-Master*, Russland

Nord-Amerika
Bollhoff RIVNUT® Inc., Kendallville, Indiana, USA

Bollhoff S.A. de C.V., Mexico City, Mexiko

Süd-Amerika
Bollhoff Adm. e Part. Ltda., Jundiaí,
Bollhoff Service Center Ltda., São Paulo, Porto Allegre und Curitiba
Arquimedes Participacoes S.A, Jundiaí,
MollerTech Bollhoff Ltda.*, Jundiaí und Curitiba,
Bollhoff Neumayer Industrial Ltda.*, Jundiaí,
Brasilien

Bollhoff S.A., Buenos Aires, Argentinien

Südost-Asien
Böllhoff Trading Company, Shanghai, China (VR)

*Joint-Ventures

Außerhalb dieser 17 Länder mit eigenen Gesellschaften betreut Böllhoff durch Vertretungen und Händler in enger Partnerschaft den internationalen Kundenkreis in anderen wichtigen Industriemärkten.

BÖLLHOFF

Böllhoff Verbindungstechnik GmbH · Archimedesstraße 1–4 · 33649 Bielefeld · Deutschland
Telefon (05 21) 44 82-03 (2 32) · Fax -3 71 · Internet www.boellhoff.com · E-Mail mkethur@boellhoff.com

BÖLLHOFF